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THE SHARK BAY MOUSE *PSEUDOMYS PRAECONIS* AND OTHER MAMMALS ON BERNIER ISLAND, WESTERN AUSTRALIA

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INTRODUCTION

As part of a study of Australian native rodents, Bernier Island off the Western Australian coast was visited by two of us, A. C. and J. F. Robinson, between 20 and 23 April 1975. The purpose of the visit was to collect, under the auspices of the Western Australian Department of Fisheries and Wildlife, three specimens of the little known Shark Bay Mouse, *Pseudomys praeconis*, and five specimens of the Ashy-Grey Mouse, *Pseudomys albocinereus*.

P. praeconis was first collected on Peron Peninsula, some 150 km south of Bernier Island, in 1858 (see Ride and Tindale-Biscoe, 1962). In 1906 Shortridge collected a skull from Bernier Island. Both these specimens were referred to *Pseudomys gouldii*, but Thomas (1910) recognized it as a distinct species and named it *P. (Thetomys) praeconis*. Since then few *P. praeconis* have been collected and all have come from Bernier Island, one being collected in 1910, one in 1959 and one during a recent Fisheries and Wildlife Department expedition. *Pseudomys albocinereus* was first collected from Bernier Island in 1906 and Thomas (1907) described these insular specimens as a separate sub-species (*Mus albocinereus squalorum*) from those on the Western Australian mainland (*P. albocinereus albocinereus*).

Collections of these species from Bernier and Dorre Island up to 1959 have been summarized in Ride and Tindale-Biscoe (1962). They considered *P. albocinereus* to be far more abundant on the islands than *P. praeconis*, an impression supported by a recent W.A. Fisheries and Wildlife Expedition to the islands (A. Burbidge personal communication).

During our visit we managed to collect 12 live specimens of *P. praeconis* and two *P. albocinereus*.

The details of these captures plus those of other mammals either caught or observed during our stay form the subject of this paper.

METHODS

On the morning of 20 April a camp was established in the beach dunes behind Red Cliff Point beach and traps were set in the localities shown in Fig. 1. Two trap types were used, an aluminium folding Sherman trap 7 x 8 x 23 cm and a wire cage trap 130 x 130 x 350 cm. Traps were set in lines consisting of five Sherman and five cage traps set alternately, with a trap spacing of 20 m. These trap lines were left out for two nights with the exceptions of Lines 1 and 9 which were only left out for one night. In addition, following the capture of the first *P. praeconis* forty-five Sherman traps were set for two nights in the area shown in Fig. 2, in an attempt to estimate the population density of this species.

Between 8.30 p.m. and 11.30 p.m. on 20 April we spotlighted on foot westward from the camp to the first dunes on the opposite side of the island and returned on a parallel route. The following evening between 8.30 p.m. and 9.30 p.m. we spotlighted south along the sand dunes at

the back of Red Cliff Point keeping to the open areas and looking specifically for mice. The approximate routes are marked on Fig. 1.

Faecal pellets were collected from traps that contained *P. praeconis* and preserved in 70% alcohol. These were later examined in the laboratory by the method of Watts (1970).

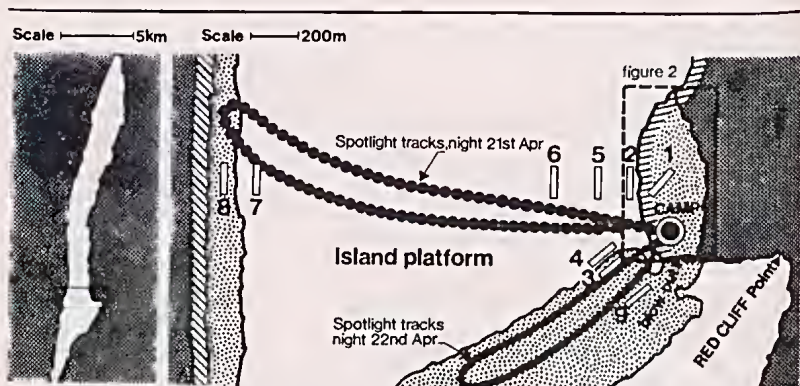


Fig. 1.—Left, outline map of Bernier Island, with the study area (in the vicinity of Red Cliff Point) blocked; right, enlargement of study area showing the location of trap lines and spotlight tracks.

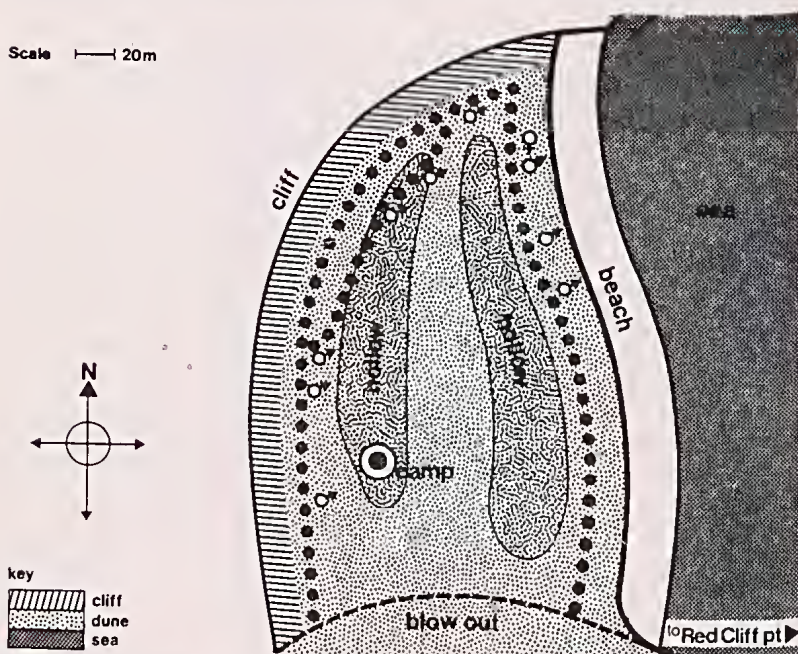


Fig. 2.—Further enlargement of portion of study area, indicated in Fig. 1. (right), which was intensively trapped for *Pseudomys praeconis*, showing capture sites (males and one female).

RESULTS

Pseudomys praeconis, Shark Bay Mouse (Fig. 3)

One male was caught in a Sherman trap in a dune valley on line 4 (Fig. 1). The vegetation in this area consisted of a dense mat of *Spinifex longifolius* and *Olearia axillaris* with scattered bushes of *Atriplex paludosa* and *Rhagodia obovata*. (Fig. 4).

Ten males (one of which may have been a recapture) and one female were caught in Sherman traps on a one hectare area of fore dune bounded by a steep blow-out to the south, the sea to the east and cliffs to the north and west (Fig. 2). The vegetation was similar to that of the first area apart from the lack of *Atriplex* and *Rhagodia* and the presence of heaps of sea grass (*Zostera*), and dead bushes of the roly poly *Salsola kali* (Fig. 5).

Both the above areas are in the Sandhill Association of Royce (1962).

Faecal samples were collected from five individuals but one sample was too heavily contaminated with bait to be useful. The results from the analysis of the remaining four are given in Table 1. The main food

TABLE—% volume of different food stuffs eaten by four *P. praeconis*.

Individual	483	484	485	486	Average
Food Item					
Dicot. flower	60	85	50	50	61
Dicot. stem/leaf	40	15	30	50	34
(Prob. from a succulent)					
<i>Olearia</i> leaf	—	—	20	—	5
Fungi	—	—	—	T	T
Insect	—	—	T	—	T

T = Trace

eaten was the petals and anthers of some flower, probably those of *Olearia* which appeared to be the only plant flowering in the area at the time. The only other significant item eaten was the leaf or stem of a fleshy dicotyledon.

All individuals caught were adult. The one female had a perforate vagina. All were released at their points of capture except for three animals



Fig. 3.—The Shark Bay Mouse (*Pseudomys praeconis*) from Red Cliff Point, Bernier Island.

that were sent to Adelaide. One of these, a male, died from unknown causes three days after arrival. The remaining animals were paired and have since produced two litters of four and three young respectively. The reproduction in captivity of this species will be described in another paper.



Fig. 4.—Habitat of *Pseudomys praeconis* on trap line 4, Red Cliff Point, Bernier Island.



Fig. 5.—Habitat of *Pseudomys praeconis* in the intensively trapped area (Fig. 2) of the Red Cliff Point, Bernier Island.

Pseudomys albocinereus, Ashy-Grey Mouse

Two individuals (♀ ♀) were caught in cage traps on Lines 3 and 4 (Fig. 1). Both animals were trapped in the Sand Dune Association. One capture site (Line 3, Fig. 1) near a dune crest was a rather more open habitat than that where *P. praeconis* was trapped. One of the females gave birth to 4 young, 23 days after capture.

Perameles bougainville, Little Marl (Fig. 6)

Two individuals (1 ♀, 1 ♂) were trapped on Line 2 and 4 (Fig. 1) and six were seen while spotlighting. The female had a pouch young approximately 10 cm in length. The male was tailless and had lost a lot of fur from its rump, perhaps the result of severe fighting. One of the six seen while spotlighting was captured. This was a female whose pouch contained two young approximately 7 cm in length.

This species was found in both the Sandhill and Open Steppe Associations (Royce, 1962).

Lagorchestes hirsutus, Western Hare-Wallaby (Fig. 7)

Four were seen on the first night while spotlighting in the Open Steppe Association. Two individuals were flushed in the daytime from tunnels through porcupine grass, *Triodia plurinervata*, tussocks, also in the Open Steppe Association.

Lagostrophus fasciatus, Banded Hare-Wallaby

This species was not seen by us, although reported to be common on Bernier Island by Ride and Tindale-Biscoe (1962).



Fig. 6.—The Little Marl (*Perameles bougainville*) from Red Cliff Point, Bernier Island.



Fig. 7.—The Western Hare Wallaby (*Lagorchestes hirsutus*) from the Red Cliff Point area, Bernier Island.

Bettongia lesueur, Boodie

An adult female was trapped on the edge of the Open Steppe Association on the cliff top above Red Cliff Point beach on Line 2. (Fig. 1). The pouch contained one young with a crown-rump length of 165 cm.

Burrows attributed to this species were sparsely scattered throughout the Open Steppe Association on the island platform above Red Cliff Point but no animals were seen while spotlighting.

Capra hircus, Goat

Three goats were sighted, one on the cliff above Red Cliff Point beach and two on the island platform approximately 1 km SW of camp.

DISCUSSION

Few specimens of *P. praeconis* have ever been collected. However our trapping results indicated that between 20 and 23 April 1975 in the area of Red Cliff Point Beach, the species was reasonably common. This was an area of matted *Spinifex* and *Olearia* and a thorough search of other similar areas on Bernier Island may reveal more populations of this species.

The original specimen of *P. praeconis* was collected on Peron Peninsula in 1858. During a brief examination of the tip of Peron Peninsula we noticed an area very similar to the Red Cliff Point trapping area. A systematic search of this and other areas in and around Shark Bay may reveal some mainland populations of *P. praeconis*.

The populations of the two wallabies *Lagorchestes hirsutus* and

Lagostrophus fasciatus appear to fluctuate on the islands (Ride and Tindale-Biscoe, 1962). It is possible that much of this apparent fluctuation is due to the differing habitat preference of the two species. *L. hirsutus* appears to be largely confined to the Tall Scrub Association (Royce, 1962), while *L. fasciatus* favours the Open Steppe Association. As very little of the former association was examined during our visit, our failure to record *L. hirsutus* is not surprising, and need not necessarily be attributed to a decline in the numbers of this species on the island.

There is some evidence that the vegetation of the island is recovering from the effects of the formerly large goat population (Ride and Tindale-Biscoe, 1962) which has been subjected to an intensive eradication programme (Anon, 1971; Chapple, 1972). Shrubs of *Diploaena dampieri* heavily grazed by goats are sprouting again and the network of trails over the island show almost no signs of use and are gradually revegetating.

We think the results of this short visit reinforce the opinion that Bernier Island is a unique and extremely valuable conservation area. It is hoped that this report will be of some help to future workers trying to reach an understanding of the mammal populations of this island; an understanding we feel is imperative if its unique fauna is to be preserved.

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